

Docket No.: 290087USOPCT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF:

GROUP: 1728

Yoshikatsu SEINO, et al.

SERIAL NO: 10/576,721

EXAMINER: CHAN, HENG M

FILED: January 26, 2007

FOR: METHOD FOR PURIFYING LITHIUM SULFIDE

**DECLARATION UNDER 37 C.F.R. § 1.132**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

Sir:

Now comes Yoshikatsu SEINO who deposes and states that:

1. I, Yoshikatsu SEINO, hereby declare and state that I am an inventor of the above-captioned present application.

2. I am familiar with the above-captioned patent application, of which IDEMITSU KOSAN CO. LTD. is the assignee.

3. I have reviewed and understood the Office Action dated December 22, 2010 and I have read and understood the contents of Koyama et al. (JP 07-330312) and Akiba et al. (US Patent No. 6,503,473).

4. The following experiments were carried out by me or under my direct supervision and control.

Example 1 and Comparative Examples 2-3 in the specification were reproduced (see specification, paragraphs [0037], [0043] and [0044]). Additionally, lithium sulfide was obtained in the same manner as in Example 1, except that the washing temperature was changed from 105 °C to 90 °C. The results are shown in Table 1 below.

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Table 1.

|                       | Washing<br>temperature<br>(°C) | LMAB<br>(wt%) |
|-----------------------|--------------------------------|---------------|
| Example 1             | 105                            | 0.07          |
| Additional Example    | 90                             | 4.2           |
| Comparative Example 3 | 70                             | 4.6           |
| Comparative Example 2 | normal<br>temperature          | 5             |

As shown in Table 1, the content of LMAB of the lithium sulfide is 4.20 wt% when the washing temperature is 90 °C. To the contrary, the content of LMAB of the lithium sulfide is 0.07 wt% when the washing temperature is 105 °C. This result shows that the contents of LMAB in the lithium sulfide abruptly changes at the washing temperature of 100 °C. It is my opinion, based on the examples above and the examples of the specification, that the method of purifying lithium sulfide as in the present application should not have been foreseen based on the disclosures of the references cited.

5. The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

6. Further deponent saith not.

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Signature

*Yoshikatsu Seno*

Date

*March 17, 2011*